ARCHBOLD
BIOLOGICAL STATION

Phone 863.465.2571
123 MAIN DRIVE ★ VENUS, FLORIDA 33960

To: Highlands News-Sun

From: Archbold Biological Station

Date Published: April 7, 2017

Author: Archbold Biological Station

From scrub to the web

The sun shines brightly, the wind carries the songs of the birds and the buzzing of the bees. Walking the trails at Archbold Biological Station and observing the beauty of the Florida scrub, one's senses can be easily stimulated. But can the same beauty and nature be seen indoors in a research laboratory? In Archbold's bug lab, nineteen, seven-foot-tall, hunter-green cabinets tower above scientists and students. Inside each of these cabinets, twenty-five basswood, glass-top drawers protect hundreds of thousands of pinned insect specimens, most of which have been collected over the decades at Archbold Biological Station. Each insect specimen is stored in its correct drawer, like a giant filing system, so that any trained biologist can quickly navigate to the right specimen.

More than 250,000 pinned insect specimens make up the majority of the natural history collection, although Archbold also houses nearly 5,000 pressed plant specimens, more than 1,400 bird skins, and more than 4,000 specimens of reptiles, amphibians and fish in preserved in jars. “Our collections are what is known as a reference collection,” states Dr. Mark Deyrup, Archbold's Entomologist, as he carefully places a pinned ant specimen in its respective drawer. “If you are out in the field, and observe a particular bug or plant, there is a great chance a specimen of that species is already in the collection, so researchers can refer to the collection to properly identify what they have seen.”

“The Archbold Collection is not vast, like the Smithsonian, but it is very large and well-curated for a biological field station,” says Dr. Hilary Swain, Executive Director. “Trained in museum traditions, Richard Archbold, the founder of Archbold Biological Station, prioritized the development and curation of an on-site natural history collection. After decades of work building the collection, it now represents one of the most important records of biodiversity, all the plants and animals, of this region.”

Like other museums around the world Archbold is harnessing modern technology to make its collections more widely available. In recognition of its significance for science, especially the breadth of data associated with the specimens, Archbold was awarded a grant from the National Science Foundation to digitize its collection and publish it online. This includes high-definition images of thousands of important specimens. “There has been a surge in digitization of collections worldwide in the past few years,” states Stephanie Leon, Assistant Curator, “People within and outside the scientific community appreciate the value of natural history collections, and they want them to be preserved, and also shared. There is so much associated with these specimens, typically labels that include 'where, when, and by whom' a specimen was collected. Many Archbold specimens include valuable information such as ‘feeding on’ or ‘emerging from’ or "collected on", and these ecological data are especially important." Hilary Swain added, "As our collection becomes available online, scientists around the world can use our data to recognize important trends such as the arrival and spread of undesirable invasive species, or compare historical and modern species distributions for changes. If scientists can easily find out what specimens are preserved at Archbold, they can contact us to use them for measuring changes in genetic diversity, which might be crucial for protecting food resources in the future, or for saving a rare species."

For the past year, the staff at Archbold has focused on digitizing the insect collection. Stephanie Leon explains, “Digitizing the insect collection involves an assembly-line-workforce. Dr. Deyrup curates and expands the collections, making sure everything is identified correctly, spaced out, and placed in the correct drawer. Two research interns and our wonderful volunteer, Mark's wife Nancy Deyrup, type away, transcribing the small labels associated with each specimen. I am in charge of imaging specimens so that we will have at least one image for each species in the collection. It may seem daunting, but we have broken down the project into manageable tasks. For example, we are on our way to completing the digitization of all the 'flower-visiting insects' specimens: this includes bees, wasps, beetles, and flies. Scientists are really interested in these type of data for pollination studies.”

So far over eleven thousand records of the flower-visiting insects are online, including 538 species of bees, wasps, beetles and flies with at least one image. “Our plans for the rest of this year include finishing digitization and uploading the ants of Florida (12,000 records, 239 species), digitizing the flower-visiting butterflies and moths, and starting on the beetles” says Stephanie Leon. “These data are not just for scientists: everyone can access the data to become familiar with the beautiful and unique insects that live in the Florida scrub.”

To view current records of our flower-visiting insects visit: http://symbiota4.acis.ufl.edu/scan/portal/collections/index.php and select the Archbold collection.

Photo 1: A drawer with hundreds of specimens of metallic green bees, a red dot on a specimen indicates that it has been digitized. Photo by Stephanie Leon.

Photo 2: *Agapostemon splendens*: a metallic green bee with pollen on its legs from oak catkins. Photo by Stephanie Leon.